

Executive Overview

One in five Americans is identified as having some kind of disability. Half of these individuals—24 million citizens—possess a significant disability. However, the broad diversity of this population and the disparity of their conditions have obscured the true magnitude of this constituency and the myriad of obstacles they must face in a world poorly equipped to accommodate them. Despite the laudable progress of Federal legislation such as the Americans with Disabilities Act, the 1996 Telecommunications Act, the Section 508 guidelines for government agencies, and the tireless efforts of countless individuals and organizations, persons with disabilities represent just 13 percent of the national workforce and, as of 1997, only about 6 percent of the science and engineering labor force. For students with disabilities, the unintended barriers of the mainstream educational system, the paucity of effective educational tools, misdirection of suitable resources, and the lack of effective role models can drastically compromise the participation of such students in higher education and graduate school. This reduction by attrition is particularly evident in courses of study leading to careers in science, technology, engineering, and mathematics (STEM) fields.

A Unique Kind of Federal Support

For nearly ten years, the Program for Persons with Disabilities (PPD) at the National Science Foundation (NSF) has been making a difference in the number of opportunities and resources available to its constituents and beneficiaries. With awards totaling more than \$39 million to 92 projects and 56 sponsors representing 30 states and the District of Columbia, the program's investment in the Nation's research, education, and special-needs communities has been formidable and inspiring.

PPD activities are united by two overarching objectives—

- To develop and implement strategies to promote full inclusion of students with disabilities throughout the educational continuum; and
- To increase the number of individuals with disabilities entering careers in science, technology, engineering, and mathematics (STEM).

Although several engineering and biomedical programs seek to develop better assistive technology, and all NSF programs are encouraged to fund activities for making education and research opportunities appropriate for all students (including those with disabilities), the unique focus of PPD highlights the issues endemic to this particular group, which continues to be greatly underrepresented in STEM education and career opportunities.

Today, NSF's Program for Persons with Disabilities is virtually unique among Federal programs in addressing disability issues in education—informing and educating all U.S. citizens, but especially enabling students with disabilities at every education level and attending all types of learning institutions. Reports to NSF show that better than 70 percent of students with disabilities who participate in PPD projects go on to higher education studies, the majority in STEM disciplines.

A Decade of Growth and Commitment

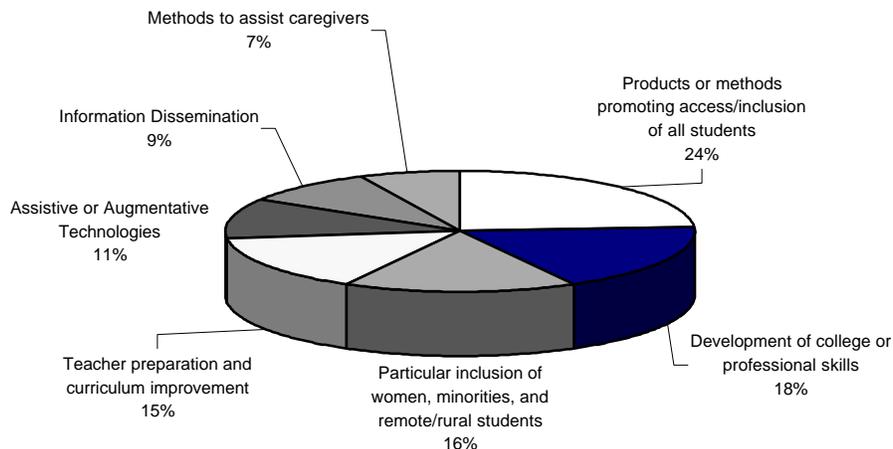
Established in response to the recommendations of national and internal advisory committees to the National Science Foundation's Directorate for Education and Human Resources, PPD's beginnings were modest. Lacking a budget for their new program, PPD staff initially co-funded 15 awards totaling \$236,838 in Fiscal Year (FY) 1993. By FY 1997, the program was receiving more than 60 proposals annually. These proposals, representing foundations, corporations, and research and educational institutions in more than 35 states, the District of Columbia, and Puerto Rico, reflected the great interest—and great need—for Federal support of researchers and educators working on disabilities-related issues. Such efforts benefit not only students and professionals with disabilities but, by extension, all persons with disabilities. By FY 1998, PPD projects involved nearly 6,000 participants. Additionally, the program's principal investigators have made presentations at dozens of conferences and distributed thousands of print and electronic materials in the name of community outreach and education. Accordingly, the volume and quality of proposals submitted to the program has continued to increase: In FY 1999, even though PPD's budget had grown to \$4.35 million, the program could afford to fund only four of 21 proposals recommended for funding by merit review panels. Despite such financial constraints, by FY 2001 the program had 49 active projects in 24 states.

Historically, PPD has given awards to proposals broadly defined as *experimental projects*, *model programs*, and *information dissemination projects* in disabilities research and education, as well as *facilitation awards*, which seek to directly assist scientists and engineers with disabilities. Beginning in FY 2001, the program's focus included Regional Alliances for Persons with Disabilities in STEM education, a model that builds upon lessons learned from various small but effective projects in PPD as well as in other successful NSF programs. These Alliances—posited as five-year, multi-million dollar Cooperative Agreements—will undoubtedly place even greater constraints on the already limited program budget, but to do otherwise would be irresponsible given our current knowledge on the efficacy of alliance-based systems and motivated, campus-to-community cooperation.

Informing and Assisting the Nation's Educators and Employers

PPD-supported information dissemination activities are key in efforts to change attitudes regarding the appropriateness of full participation of students with disabilities in science-related education and careers. Through the program, thousands of people with disabilities, service providers, educators, and employers have learned about methods to achieve full inclusion of students with disabilities in science, mathematics, and engineering education. Thousands more have learned of PPD successes through media coverage; mass-market publications; conference presentations; radio, television, and Internet broadcasts; discussion groups; and electronic databases.

Specified Goals of PPD-Awarded Projects



Source: NSF Division of Human Resource Development.

Dissemination of exemplary products and practices will be needed for years to come, building on what we have learned regarding effective pedagogy, assistive technologies, universal access, and human cognition. To this end, PPD continues to support smaller standard and continuing grants that specifically promote dissemination of effective products and practices as well as various focused research initiatives.

*Fostering Effective Mentors, Role Models,
and Community Resources*

Changing faculty and campus attitudes regarding students with disabilities, informing administrators and standards-based boards on the requirements of various disabilities, and giving all educators the tools they need to address these populations more effectively are the true legacies of PPD awards. PPD funding helped the American Association for the Advancement of Science publish its *Directory of Scientists and Engineers with Disabilities* to serve as a resource for expertise and professional role models. Several PPD projects are using mentoring and tiered-mentoring to give encouragement to students at all levels of study while “teach the teacher” workshops give educators new tools and practices for more inclusive classroom environments. In other arenas, PPD has supported assistive technology products that are bringing unprecedented levels of technical and computational information to students as well as professionals. Finally, resources centers such as the Equal Access to Software and Information (EASI) and the National Center for Accessible Media (NCAM) promote awareness of disability issues to the broadest national audience.

The various and diverse successes of PPD projects are at once the program’s greatest triumph and its greatest impetus for doing even more in the future. As the program begins its second decade, we look forward to such challenges and the tremendous rewards that will unquestionably be returned.